

# Exercise 2: simple disparity map estimation (without moves nor occlusion)

- Given 2 rectified images  $I, I'$ , estimate optimal disparity

$$d(p) = d_p \text{ for pixels } p = (u, v)$$



$p$



$p' = p + (d_p, 0)$

- Setting: linear multi-label graph construction (cf. pp. 85-96)

- discrete disparities:  $d_p \in \mathcal{L} = \{d_{\min}, \dots, d_{\max}\}$

- $\mathcal{N}_p$ : 4 neighbors of pixel  $p$

- $D_p(d_p) = w_{cc} \rho(E_{ZNCC}(P; (d_p, 0)))$  with  $\rho(c) = \begin{cases} 1 & \text{if } c < 0 \\ \sqrt{1-c} & \text{if } c \geq 0 \end{cases}$

- $V_{p,q}(d_p, d_q) = \lambda |d_p - d_q|$

- See material provided for the exercise on web site  
(template code and detailed exercise description)

N.B. only  $w_{cc} / \lambda$  matters